

Chapter 2:

First Line of Defense

Estimated training time:

30 minutes

Educational objectives:

This chapter will help you teach your staff to...

Recognize the *five basic hazards* common to any food service environment:

- foodborne illness
- pest problems
- chemical contaminants
- physical contaminants
- on-the-job injuries

Recognize the *three essentials of food safety*:
Clean, Cold, and Cooked

Presentation outline:

This chapter includes 11 teaching aids. One is a brainstorming activity, eight are visuals which you can use with overhead projectors or copy and hand out, and two are group activities. Use the group exercise to wrap up this chapter.

The teaching aids for Chapter 2 are listed on page 29.

• The Significance of Everyday Things

T E X T :

When it comes to food safety, *every* activity is significant. So is *every* worker. In fact, the importance of the individual in maintaining a safe and sanitary food service operation cannot be over-emphasized.

On any given day, *every food service worker* has many opportunities to cause sanitation and safety problems — and to prevent them. The vast majority of these encounters may go unnoticed, whether or not workers' actions are appropriate. A false sense of security may prevail until a seemingly minor, harmless action results in catastrophe.

It's important to understand that *most foodborne illnesses* are caused by bacteria or other microorganisms *spread by workers*. In addition to human suffering, an outbreak of foodborne illness can result in a damaged reputation as well as financial loss.

The food service worker is truly *the first line of defense* against hazards in the food service environment. So what specifically can workers do to prevent problems?

- First, they can recognize the wide range of hazards present in everyday activities and the potentially serious consequences associated with them.
- Second, they can follow a few simple precautions to prevent both food-related illness and on-the-job injuries.

A C T I V I T Y :

Use Teaching Aid 2.1, “The Significance of Everyday Things,” a brainstorming activity. Use Teaching Aid 2.1a, “Everyday Do’s and Don’ts,” as a visual.

• What Are the Hazards?

T E X T :

A typical food service environment is filled with potential dangers to both customers and the food service workers themselves. The five basic hazards common to any food service environment are:

- foodborne illness
- pest problems
- chemical contaminants
- physical contaminants
- on-the-job injuries

VISUAL OR HANDOUT:

Use Teaching Aid 2.2, “What Are the Hazards?”

Hazard 1: Foodborne Illness

VISUAL OR HANDOUT:

Use Teaching Aid 2.3, “Foodborne Illness.”

T E X T :

Commonly referred to as food poisoning, a foodborne illness is caused by foods that contain bacteria or other microorganisms that are harmful to the human body.

Foodborne illness affects at least 7 million Americans each year, and is considered a major public health problem. For certain highly susceptible groups, such as the elderly, young children, pregnant women, and the immune-impaired, foodborne illnesses can be fatal. For others, foodborne illness can result in discomfort lasting several days or even longer.

NOTE: The causes and prevention of foodborne illness are reviewed in more detail in Chapters 3, 4, and 5.

Hazard #2: Pest Problems

VISUAL OR HANDOUT:

Use Teaching Aid 2.4, “Common Pests.”

T E X T :

Pests such as roaches, flies, and rodents can become a problem in any environment where food and supplies are stored, prepared, or served. Pests carry disease and bring filth into the food service environment.

Keeping facilities clean and in good repair can go a long way toward preventing pest infestation.

NOTE: Chapter 6 presents additional information about typical pests and how to control them.

Hazard #3: Chemical Contaminants

T E X T :

Food service establishments use a variety of chemicals for cleaning and sanitizing as well as for pest control.

While these chemicals can be instrumental in maintaining a safe and sanitary facility, if handled inappropriately they can also contaminate food and make people sick. Employees who handle hazardous chemicals also risk injury due to exposure.

Hazardous chemicals include:

- sanitizers
- pesticides
- whitening agents
- detergents
- polishes
- caustics
- cleaning and drying agents

Handling and storing chemicals properly are *the two key* factors in preventing chemical-related illness and injury.



VISUAL OR HANDOUT:

Use Teaching Aid 2.5, “Prevent Chemical Contamination.”

T E X T :

To prevent chemical contamination:

- Store chemicals in original containers away from food. This will prevent accidental misuse as well as leakage into food.
- Wash hands thoroughly after working with chemicals.
- Wash fresh fruits and vegetables with plain water. Also, scrub thick-skinned produce with a brush to remove any pesticides.
- Monitor procedures used by pest control operators to ensure pesticides do not contaminate food.
- Limit access to chemicals to authorized personnel.
- Make sure labels clearly display chemical hazards.

Metals are another potential source of contamination. Highly acidic foods can react with metals during cooking or storage.

To prevent this problem:

- DO NOT USE...galvanized containers with acidic foods like lemonade, tomato products, and salad dressing.
- USE...metal containers and metallic items only for their intended uses (for example, do not use refrigerator shelves as grills).
- AVOID...enamelware, which can chip and expose underlying metal.

Hazard #4: Physical Contaminants

T E X T :

Physical contaminants include dirt, hair, nail polish flakes, broken glass and crockery, nails, staples, metal fragments, and bits of packaging materials.

They may be present in food when it is received or may fall into food during the handling process. Because physical hazards are easily seen, they are commonly reported by customers.

Proper attire and other simple precautions can prevent most physical food contamination.

VISUAL OR HANDOUT:

Use Teaching Aid 2.6, “Prevent Physical Contamination.”

T E X T :

To prevent physical contamination:

- Use commercial scoops — not glasses — to scoop ice.
- Do not store items in the same ice that will be used for foods and beverages.
- Store toothpicks and non-edible garnishes in places that are below food storage and preparation areas.
- Place shields on lights.
- Clean can openers regularly.

Also be sure to:

- Remove staples, nails, etc. from boxes when food is received.
- Do not repair equipment temporarily with items that could potentially fall into food. (For example, do not use a hair pin in place of a cotter pin).
- Do not wear nail polish or artificial nails when working with exposed foods, unless wearing intact gloves in good repair.
- Do not store food in containers or bags that are not approved for food storage.

Hazard 5: On-the-Job Injuries

T E X T :

There are many hazards to personal safety inherent to food service environments. Lack of attention to these hazards can cause a variety of on-the-job accidents. These accidents include such things as:

- cuts
- electrical shock
- burns
- strains
- slips and falls
- fires
- choking

VISUAL OR HANDOUT:

Use Teaching Aid 2.7, “Hazards + Human Error = Injury.”

T E X T :

By staying alert to hazards, paying attention to the job, and using safe practices when handling equipment, employees can help protect themselves against injury.

We’ll explore prevention in more detail in Chapter 7.

• Food Safety Essentials

T E X T :

Once you understand *the factors that contribute* to foodborne illness, preventing illness is not as difficult as it may seem. There are concrete *precautions you can take* to ensure a safe and sanitary food service process.

Although there are many specific prevention methods, you will go a long way toward preventing foodborne illness by remembering “the three Cs”:

Clean, Cold, and Cooked

VISUAL OR HANDOUT :

Use Teaching Aid 2.8, “Remember the Three Cs.” To wrap up the chapter, use Teaching Aids 2.9 and 2.9a, “Where Are the Hazards?”

T E X T :

Clean means good housekeeping, proper personal hygiene, and thorough sanitation of equipment and utensils. As you will learn, there’s a big difference between looking clean and being sanitary. Microscopic bacteria or other organisms can easily slip through unnoticed on hands, equipment, and utensils that appear clean to the naked eye.

Cold means storing food at temperatures that inhibit growth of harmful microorganisms. Although bacteria and other microorganisms may survive in a refrigerator or freezer, they generally will not reproduce at temperatures below 40°F. Prepared, uncontaminated cold foods must be held below this temperature to keep the food safe.

Cooked means bringing foods to an internal temperature at which bacteria will be destroyed (165°F). Bacteria that survive the preparation process must be killed by thorough cooking. Cooked foods must then be held at a high enough temperature to keep the food safe (140°F).

Teaching Aids To Use With Chapter 2: "First Line of Defense"

- The Significance of Everyday Things *Teaching Aid 2.1*
(Brainstorming Activity)
- Everyday Do's and Don'ts *Teaching Aid 2.1a*
- What Are the Hazards? *Teaching Aid 2.2*
- Foodborne Illness *Teaching Aid 2.3*
- Common Pests *Teaching Aid 2.4*
- Prevent Chemical Contamination *Teaching Aid 2.5*
- Prevent Physical Contamination *Teaching Aid 2.6*
- Hazards + Human Error = Injury *Teaching Aid 2.7*
- Remember the Three Cs *Teaching Aid 2.8*
- Where Are the Hazards? *Teaching Aid 2.9 - 2.9a*
(Group Activity)

Teaching Aid 2.1:

"The Significance of Everyday Things"

(Instructions for Presenters)

This is a brainstorming activity. Here's how to lead it:

First... Distribute Teaching Aid 2.1a, "Everyday Do's and Don'ts" and display it on an overhead transparency.

Then... Ask employees what they do — and don't do — every day to maintain a safe and sanitary workplace.

You may need to start the discussion by giving a few examples. See the list below for some typical "do's" and "don'ts" you may wish to use.

Typical "Do's" might include:

1. Washing hands.
2. Cleaning and sanitizing utensils, dishes, and equipment.
3. Wearing gloves, hair nets, and other appropriate clothing.
4. Refrigerating foods.
5. Cooking foods thoroughly.

Typical "Don'ts" might include:

1. Using hands or serving utensils to taste foods during preparation or serving.
2. Reusing dishes, equipment, or utensils without sanitizing them.
3. Eating or smoking in undesignated areas.
4. Touching hair or parts of the body, then handling food.

Teaching Aid 2.1 -
"The Significance of
Everyday Things"
(Instructions for
Presenters)

Everyday Do's and Don'ts

DO...

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

DON'T...

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Teaching Aid 2.1a -
"Everyday Do's
and Don'ts"

What Are the Hazards?

- Foodborne illness
- Pest problems
- Chemical contaminants
- Physical contaminants
- On-the-job injuries

Foodborne Illness



“Tricky Trichinella”
(*Trichinella*)

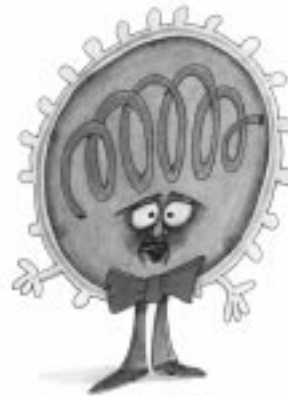
An illness caused by food that contains bacteria or other microorganisms that are harmful to the human body.



“Cocky E. Coli”
(*Escherichia coli*)



“Brazen Botchy”
(*Clostridium botulinum*)



“Voracious Virus”
(*Virus*)



“Pesky Perfy”
(*Clostridium perfringens*)



“Savage Sam”
(*Salmonella*)



“Frightening Fungi”
(*Molds and yeasts*)



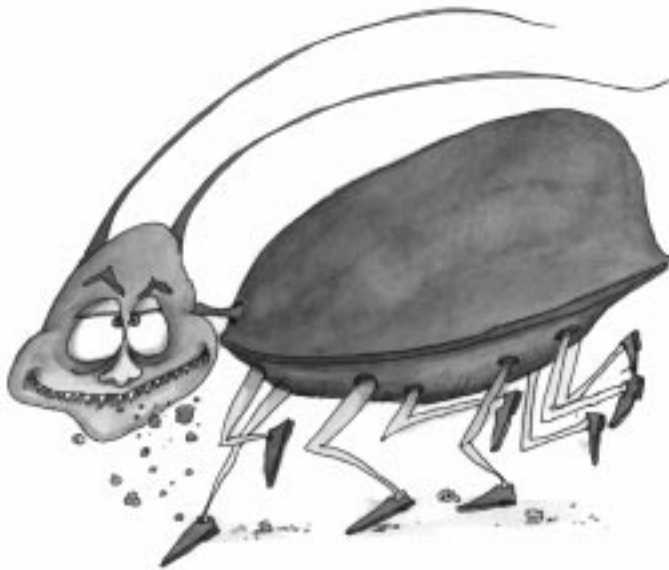
“Sinister Staph”
(*Staphylococcus aureus*)

Teaching Aid 2.3 -
“Foodborne Illness”

Common Pests



- Rodents
- Roaches
- Flies



Teaching Aid 2.4 -
“Common Pests”

Prevent **CHEMICAL** Contamination

- **STORE...** chemicals in original containers away from food to avoid leakage into food or accidental misuse.
- **WASH...** hands thoroughly after working with chemicals.
- **WASH...** fresh fruits and vegetables with plain water or scrub thick-skinned produce with a brush to remove any pesticides.
- **MONITOR...** procedures used by pest control operators to ensure pesticides do not contaminate food.
- **LIMIT...** access to chemicals to authorized personnel.
- **MAKE SURE...** labels clearly display chemical hazards.
- **DO NOT USE...** galvanized containers with acidic foods.
- **USE...** metal containers and metallic items for their intended uses **ONLY**.
- **AVOID...** enamelware.

Teaching Aid 2.5 -
“Prevent Chemical
Contamination”

Prevent **PHYSICAL** Contamination

- **DO NOT...** use glasses to scoop ice; use commercial scoops.
- **DO NOT...** store items in ice that will be used in foods or with beverages.
- **STORE...** toothpicks and non-edible garnishes below food storage and preparation areas.
- **PLACE...** shields on lights.
- **CLEAN...** can openers regularly.
- **REMOVE...** staples, nails, etc. from boxes when food is received.
- **DO NOT...** repair equipment temporarily with items that might fall into food. For example, do not use a hair pin in place of a cotter pin.
- **DO NOT...** wear nail polish.
- **DO NOT...** store food in containers or bags that are not approved for food storage.

Teaching Aid 2.6 -
“Prevent Physical
Contamination”

Hazards + Human Error = Injury

Common food service injuries include:

- Cuts
- Electrical shock
- Burns
- Strains
- Slips and falls
- Fires
- Choking

Teaching Aid 2.7 -
“Hazards + Human
Error = Injury”

Remember the "Three Cs"

The three essentials of food safety are:

- Clean
- Cold
- Cooked

Teaching Aid 2.9:

"Where Are the Hazards?"

(Instructions for Presenters)

This is a group activity. Here's how to lead it:

First... Divide the employees into groups of two to three people. Distribute Teaching Aid 2.9a, along with paper and pencils.

Then... Tell the groups to: (1) find the hazards hidden in the scene; and (2) list them.

Finally... Discuss the hazards the groups have found and ways to avoid these hazards.

What's wrong with the scene in Teaching Aid 2.9a?

The answers: (1) The server is not wearing a glove over her bandaged hand. (2) She is wearing dangling earrings. (3) She is not wearing any hair covering. (4) Her clothing is soiled. (5) There is rat poison on the storage shelf. (6) There are pests running about. (7) Pots are stored on the floor. (8) Utensils are stored right-side up and uncovered. (9) Pot is boiling over. (10) Trash is on the floor. (11) Maintenance tools, such as mops and brooms, are not stored properly to prevent contaminating food and equipment.

Teaching Aid 2.9 -
"Where Are the
Hazards?"
(Instructions for
Presenters)

Where Are the Hazards?

How many hazards can you find in this scene?



Teaching Aid 2.9a -
"Where Are the
Hazards?"
(Group Activity)